

010462



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

SWA3-3

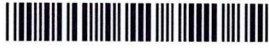
Job Sheet 196179



Part No: SWA3-3

Job Qty: 1 pcs

Part Name: Electric Swivel 3,000 lb Safe Work Load (1,360 Kg)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 6/7/19

Job Tracking No:

Due Date: 7/19/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG SWA3-3 Rev 3 IPP Rev A 18.02.13 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	External Load - 1	1 pcs	7/19/19		0.00	2.00	External Load - 1		AP
							External Load - 2		
							External Load - 3		
110	External Load - 2 - B4B	1 pcs	7/19/19		0.00	2.00	External Load - 1 - B4B		Michel 2019-7-16
							External Load - 2 - B4B		
							External Load - 3 - B4B		
120	QC 5	1 pcs	7/19/19		0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
130	Packaging 3-1 - Stock - B4B	1 pcs	7/19/19		0.00	0.00	Packaging 3 - 1 - B4B		
							Packaging 3 - 2 - B4B		
							Packaging 3 - 3 - B4B		
							Packaging 3 - 4 - B4B		
							Packaging 3 - 5 - B4B		
							Packaging 3 - 6 - B4B		
							Packaging 3 - 7 - B4B		
							Packaging 3 - 8 - B4B		



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S191661



Part: SWA3-3

Job No: 196179

Serial No/Batch: S191661

Revision: 3

Inspector:

Exp Date:

Instructions:

Date: 06/19/19

JUL 17 2019

JUL 17 2019

				Packaging 3 - 9 - B4B			
				Packaging 3 - 10 - B4B			
				Packaging 3 - 11 - B4B			
				Packaging 3 - 12 - B4B			
				Packaging 3 - 13 - B4B			
				Packaging 3 - 14 - B4B			
				Packaging 3 - 15 - B4B			
				Packaging 3 - 16 - B4B			
				Packaging 3 - 17 - B4B			
				Packaging 3 - 18 - B4B			
				Packaging 3 - 19 - B4B			
				Packaging 3 - 20 - B4B			
				Packaging 3 - 21 - B4B			
				Packaging 3 - 22 - B4B			
				Packaging 3 - 23 - B4B			
				Packaging 3 - 24 - B4B			
				Packaging 3 - 25 - B4B			
				Packaging 3 - 26 - B4B			
				Packaging 3 - 27 - B4B			
				Packaging 3 - 28 - B4B			
				Packaging 3 - 29 - B4B			
				Packaging 3 - 30 - B4B			
				Packaging 3 - 31 - B4B			
				Packaging 3 - 32 - B4B			
				Packaging 3 - 33 - B4B			
				Packaging 3 - 34 - B4B			
				Packaging 3 - 35 - B4B			
				Packaging 3 - 36 - B4B			
135	DC - 1 - B4B	1 pcs	7/19/19	0.00 0.00	DC - 1 - B4B	DAS 21 9-28	JUL 17 2019
					DC - 2 - B4B		
140	QC 21 - FG	1 pcs	7/19/19	0.00 0.00	QC 21 - FG - 21	DAS 21 9-28	JUL 17 2019
					QC 21 - FG - 70		
					QC 21 - SA - 53		

Part Op **100** - (Small Fab) -Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA3 swivel manual***
 Descriptions: Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.

110 - (Small Fab) -Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA3 swivel manual***
 Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.

120 - (QC5- Inspect part completeness to step on W/O)

130 - (Identify as per dwg & Stock Location: _____) Bag and tag

135 - (Document Control) Photocopy blue file OM & OOPM-SWA3A Rev3

140 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
188-FPSS-832-1/4	Set Screw	1 Ea (1 ea)	100-External Load - 1	S165060
92210A303	Flat Socket Cap Screw	4 pcs (4 ea)	110-External Load - 2 - B4B	S196435-1
EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	S192571
EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	S157401
EL314-SJTOW	Long Line Electrical Wire, 14/3 Gauge replace w/t 01004-08-047	6 ft (6 ea)	110-External Load - 2 - B4B	S179682
SWA3-100	Upper End - Swa3 Swivel	1 pcs (1 ea)	110-External Load - 2 - B4B	S174084
SWA3-200	Lower End	1 pcs (1 ea)	110-External Load - 2 - B4B	193421
SWA3-300	Wire Clamp	2 pcs (2 ea)	110-External Load - 2 - B4B	S173676
SWA3-400	Button Head Screw	2 pcs (2 ea)	110-External Load - 2 - B4B	S191068
SWA3-500B	Contact Spacer	1 pcs (1 ea)	110-External Load - 2 - B4B	S174896
SWA3-600	O-Ring	1 pcs (1 ea)	110-External Load - 2 - B4B	S176842
SWA3-700	Bearing Balls - 1/4"	32 Ea (32 ea)	110-External Load - 2 - B4B	S192691
SWA6A-1900	1/4" Female Spade Connector	6 Ea (6 ea)	110-External Load - 2 - B4B	S175992
SWA6A-900B	Rotary Connector - 3 wire	1 Ea (1 ea)	110-External Load - 2 - B4B	S172449

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-External Load - 1	188-FPSS-832-1/4	1	96	0
110-External Load - 2 - B4B	92210A303	4	8	0
	EL-PLUG-F	1	13	0
	EL-PLUG-M	1	20	0
	EL314-SJTOW/01004-08-047	6	0	0
	SWA3-100	1	14	0
	SWA3-200	1	2	0
	SWA3-300	2	16	0
	SWA3-400	2	18	0
	SWA3-500B	1	6	0
	SWA3-600	1	22	0
	SWA3-700	32	333	0
	SWA6A-1900	6	102	0
	SWA6A-900B	1	7	0

Part Specifications

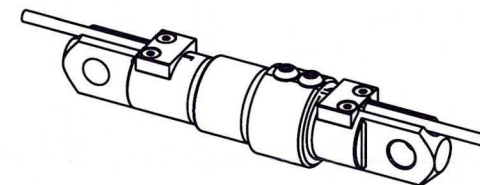
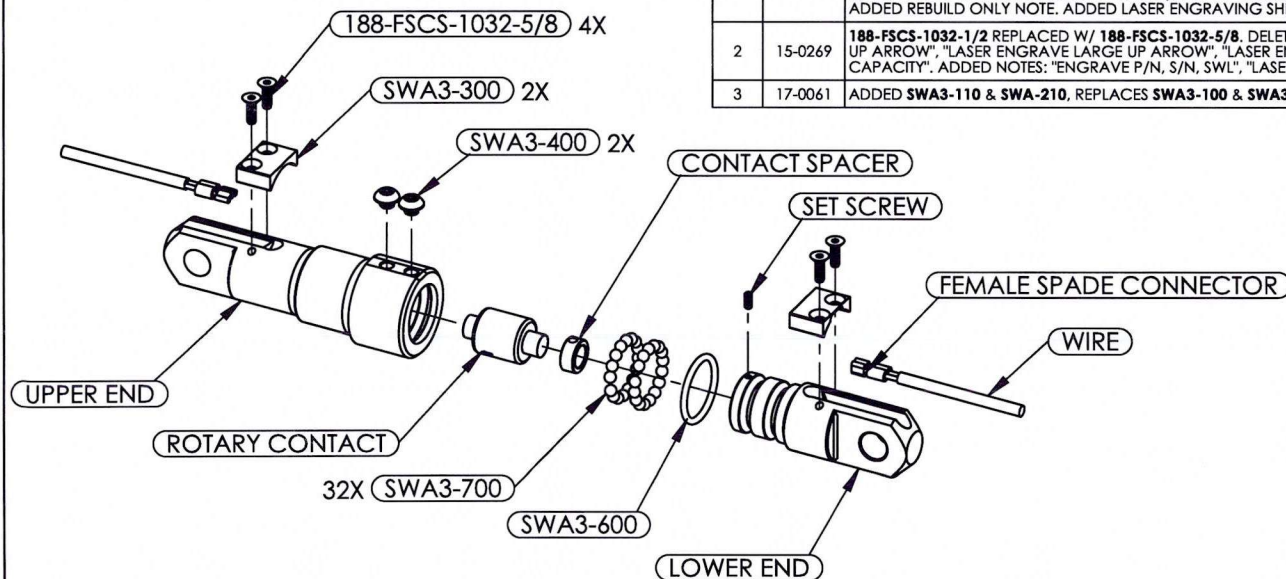
Specifications could not be found.

Loctite 242 (S186572)
 Silicone grease (M139008)
 Aeroshell grease No. 7 (S138964)

Plex 6/7/19 1:07 PM Dart.lajeunesse.marie

This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR.

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
A		REPLACED ID DECAL 600.1318 WITH LASER ETCHING	11/16/2012	JAG	
B		REMOVED 2 WIRE HARNESS	8/8/2013	JAG	RW
1	15-0079	UPDATED TO NEW DRAFTING STANDARDS. ADDED SWA6A-2000, 188-FPSS-832-3/8, EL314-SJTOW CH'D QTY'S: -2 ASSY WAS 6 IS 1, -3 ASSY WAS 6 IS 1. ADDED 6 FT. TO B/O INFO. EL404-ARTIC CH'D QTY'S: -4 ASSY WAS 6 IS 1. ADDED 6 FT. TO B/O INFO. SWA6A-1900 CH'D QTY'S: -4 ASSY WAS 8 IS 4. ADDED REBUILD ONLY NOTE. ADDED LASER ENGRAVING SHEET.	4/16/2015	DPD	JAG
2	15-0269	188-FSCS-1032-1/2 REPLACED W/ 188-FSCS-1032-5/8. DELETED NOTES: 2X "LASER ENGRAVE SMALL UP ARROW", "LASER ENGRAVE LARGE UP ARROW", "LASER ENGRAVE DART LOGO P/N S/N CAPACITY". ADDED NOTES: "ENGRAVE P/N, S/N, SWL", "LASER ENGRAVE DART LOGO".	9/23/2015	DPD	JAG
3	17-0061	ADDED SWA3-110 & SWA-210, REPLACES SWA3-100 & SWA3-200 IN -4 ASSY.	3/23/2017	DPD	JAG



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 196179 NLS
190607

-2 QTY	-3 QTY	-4 QTY	B/O	Part #	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
1	1	-		SWA3-100	UPPER END			1
-	-	1		SWA3-110	UPPER END			1
1	1	-		SWA3-200	LOWER END			1
-	-	1		SWA3-210	LOWER END			1
2	2	2		SWA3-300	WIRE CLAMP			1
2	2	2		SWA3-400	BUTTON HEAD SCREW			1
1	-	-		SWA3-500	CONTACT SPACER			1
-	1	1		SWA3-500B	CONTACT SPACER			1
1	1	1		SWA3-600	O-RING			1
32	32	32	B/O	SWA3-700	BALL BEARING	S.S.	Ø1/4 MCMaster-CARR #9529K15	1
1	-	-	B/O	SWA6A-900A	ROTARY CONTACT		MERCOTAC #230	1
-	1	-	B/O	SWA6A-900B	ROTARY CONTACT		MERCOTAC #330	1
-	-	1	B/O	SWA6A-900C	ROTARY CONTACT		MERCOTAC #430	1
4	4	4	B/O	188-FSCS-1032-5/8	FLAT SOCKET CAP SCREW	S.S.	10-32 x 5/8 (MCMaster-CARR #92210A303)	1
1	1	-	B/O	EL314-SJTOW	3 WIRE		6 FT. (TEXCAN #EL 314-SJTOW 3/14)	1
-	-	1	B/O	EL414-ARTIC	4 WIRE		6 FT. (TRUCK & AUTO SUPPLY #EL 414-ARTIC 4/14)	1
-	1	1	B/O	188-FPSS-832-1/4	SET SCREW	18-8 S.S.	8-32 X 1/4 MCMaster-CARR #92311A190	1
1	-	-	B/O	188-FPSS-832-3/8	SET SCREW	S.S.	8/32 X 3/8 (MCMaster-CARR #92311A192)	1
4	6	4	B/O	SWA6A-1900	1/4" FEMALE SPADE CONNECTOR		(MCMaster-CARR #69525K16)	1
-	-	4	B/O	SWA6A-2000	1/8" FEMALE SPADE CONNECTOR		(MCMaster-CARR #69525K14)	1
1	1	1	B/O	600.1319	UP DECAL			N/S
1	1	1	B/O	EL-PLUG-F	FEMALE PLUG	PE High Density	(MCMaster-CARR #7216K6)	1
1	1	1	B/O	EL-PLUG-M	MALE PLUG	PE High Density	(MCMaster-CARR #7216K5)	1
-2 QTY	-3 QTY	-4 QTY						

NOTES:

1. ALL ASSEMBLY TO BE DONE IN ACCORDANCE WITH SWA3 SWIVEL MANUAL.

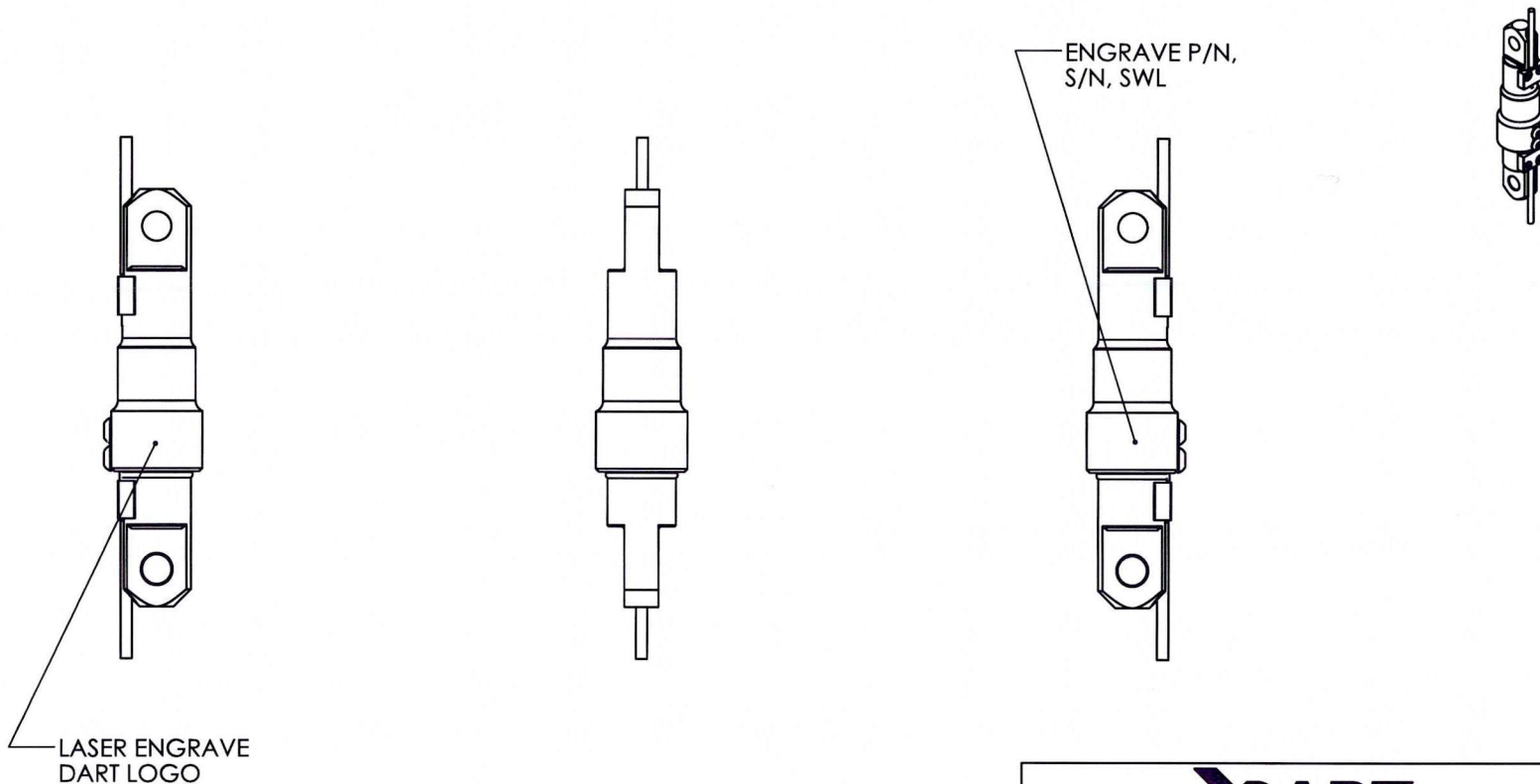
2. FOR CUSTOMER REBUILD ONLY.

DART
AEROSPACE

TITLE		SWA3 SWIVEL	
DWG NO.		SWA3	
REV		3	
MATERIAL		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
HEAT TREAT		.XXX ± .005 FRACTIONS ± 1/8	
FINISH		.XX ± .01 ANGLES ± 5°	
SPEC		X ± .1 SURFACES = 125	
DRAWN BY:		CANAM	
CHECKED:		SM 03/23/2017	
OPPS APPR:		AA 03/28/2017	
QA APPR:		JL 04/05/2017	
APPROVED:		JAG 04/11/2017	
SCALE		1:4	
DATE			
		SHEET 1 OF 2	

This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR.

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1	15-0079	ADDED LASER ENGRAVING SHEET.	4/16/2015	DPD	JAG
2	15-0269	DELETED NOTES: 2X "LASER ENGRAVE SMALL UP ARROW", "LASER ENGRAVE LARGE UP ARROW", "LASER ENGRAVE DART LOGO P/N S/N CAPACITY". ADDED NOTES: "ENGRAVE P/N, S/N, SWL", "LASER ENGRAVE DART LOGO".	9/23/2015	DPD	JAG



DART AEROSPACE	
TITLE SWA3 SWIVEL	
DWG NO. SWA3	REV 3
MAT'L	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT	.XXX ± .005 FRACTIONS ± 1/8
TREAT	.XX ± .01 ANGLES ± 5°
FINISH	.X ± .1 SURFACES = 125✓
SPEC	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
DRAWN BY: CANAM	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
CHECKED: SM 03/23/2017	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
OPPS APPR: AA 03/28/2017	USED ON MODEL
QA APPR: JL 04/05/2017	
APPROVED: JAG 04/11/2017	
SCALE 1:4	DATE
SHEET 2 OF 2	

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐ ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled		FAULT CATEGORY ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

Work Order 196179

Customer _____

Number of Wires 3Date 2019 - 7 - 15Serial Number 5191661

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	3,000	Check for Conductivity against all wires.	- Pass
1	3,000	Check all wires for grounding against swivel body.	- Pass
1	1,500	Check for Conductivity against all wires.	- Pass
1	1,500	Check all wires for grounding against swivel body.	- Pass
1	750	Check for Conductivity against all wires.	- Pass
1	750	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Michel Lalonde
TechnicianSignature: Sylvie Boucher
QC 5 Small FAB / QA

Submit

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>196179</u> Part No. <u>SWA### Swivels</u> NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; font-size: small;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date: <u>2019/07/16</u>	Step #: _____	QTY Effective: _____		MRB (QS1042) Approval <i>M. Lee</i> Feb 01, 2018																	
Description Work Order Deviation - Use a combination of heatshrink tubing and RTV Silicone to create a watertight seal around all electrical connections. - Use a D2728-1 Placard in place of the laser engraved Dart logo		Disposition These deviations are acceptable to carry out on the following swivels: - SWA3 - SWA6A - SWA10A - SWA15A - SWA25A - PSWA25A - H440-Q280002 <i>M. Lee</i> There is no impact on fit, form or function.		Completed By <u>A. PATRY</u> Lead hand / Supervisor Approval Verification DAS 30 3.30																	
				QC / QA Coordinator Approval																	

Root Cause		FAULT CATEGORY								
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☒	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☒	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☒	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____						
Misidentified	☐	Past Due	☐							